6. RESULTS ON RETURN TO WORK AT INSURED AND SELF-INSURED FIRMS

One of the primary motivations for this study is the anecdotal evidence that return to work is better at self-insured firms in California. The results in Figure 10 showing lower proportional wage losses during the first few years after injury could be driven by more sustained return to work in the years immediately following injury. As discussed above, there are many theoretical reasons to suggest that return to work will be better at self-insured firms, and the literature also has demonstrated it (Krueger, 1990; Biddle, 1998a, 1998b). In this section, we examine post-injury employment among PPD claimants at self-insured and insured firms in California.

Typically, return to work is estimated using data on lost workdays or temporary disability benefits. This measure captures one of the dimensions of return to work that may affect long-term losses (as discussed above). However, these measures will only capture the first part of the disability suffered by the worker. Several recent studies have shown that unemployment subsequent to initial return to work is common among injured workers (Biddle, 1998a; Butler, Johnson and Baldwin, 1995; Krause et al., 1999; Galizzi and Boden, 1996; Peterson *et al*, 1997). For this reason, we will examine a more general estimate of return to work: post-injury employment relative to a comparison group.[1] As discussed in the wage-loss section above, the comparison group is workers who were working at the same time at the same employer and who were making approximately the same wage as the injured worker at the time of injury. For self-insured firms, we add the additional condition that the worker and the comparison workers have similar tenure. We will also examine the probability that an injured worker never returns to work (as in Figure 7 above), and the probability that he or she is employed at the employer of injury, both measured relative to the same probabilities for the comparison group.

Figure 11 shows the fraction of PPD claimants at self-insured firms in 1993 that are employed over the three years prior to injury and the five years following. At the quarter of injury, this fraction is equal to one, since that is the quarter during which the claims data are

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[1] We do not measure the amount of time to first return to work in this report. While this is an important component of employer cost, it is not likely to capture the employment consequences of a disabling injury as effectively as the measure used in this report. We also do not have temporary disability benefits reported separately for many employers, and the date of return to work was reported by very few employers.

matched to the wage data.[2] The quarters prior to injury reflect the entrance into the sample of the injured workers and their comparison workers, and any time out of work unrelated to injury experienced by both. Three years prior to injury, 87 percent of both the injured workers and their comparison workers were employed in California.

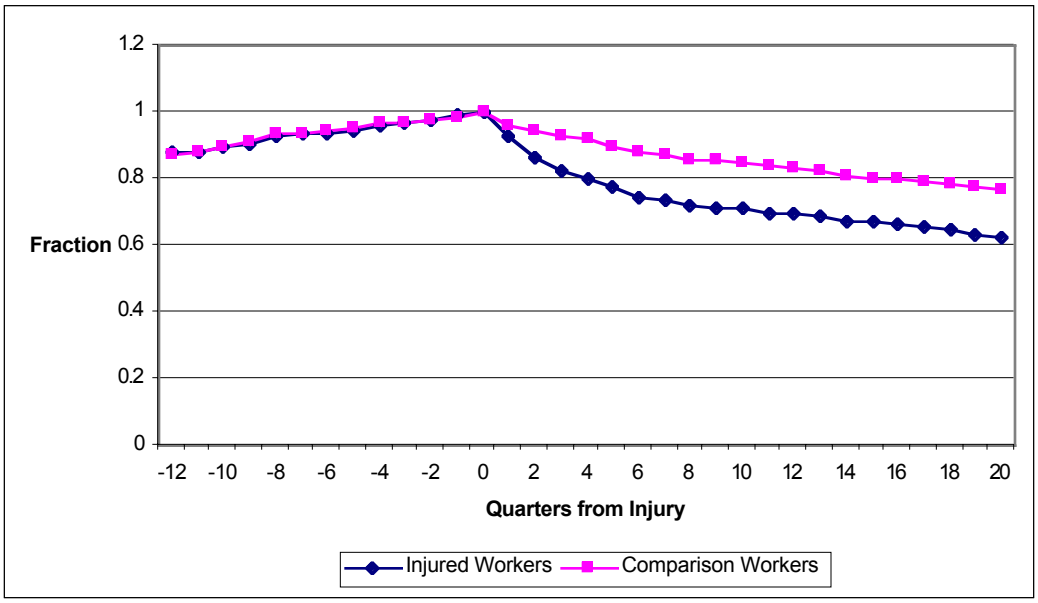

Figure 11—Fraction Employed Before and After Injury: PPD Claimants at Self-Insured Firms in California, 1993

At the time of injury, the fraction of both the injured workers and the comparison workers begins to decline, reflecting in part the natural movement in and out of the labor force in California due to retirement, movement out of state, and other reasons. However, the decline in employment by the injured workers is more pronounced than the decline among the comparison workers. One quarter after injury, 96.3 percent of the comparison workers are working, but only 92.5 percent of the injured workers.[3] Therefore, injury-related time out of work, the gap between the two lines in Figure 11, is 3.8 percent. We refer to this as injury-related because it only reflects time out of work over and above the amount experienced by the comparison workers.

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[2] As noted above, when there are no earnings from EDD during the quarter of injury as reported on the employer's wage data, the quarter of injury is redefined for up to four quarter before to the earliest with reported earnings. Therefore, the 100 percent employment in the quarter of injury is by study design.

[3] It should be emphasized that while this measure of return to work is likely to be a better measure of sustained return to work, and therefore a better measure of the long-term employment consequences of an injury, because it only counts workers out of work for over a quarter, it clearly misses some spells of nonwork. In particular, if the initial duration of temporary disability is shorter than a quarter, will not be captured using this measure of nonwork.

The injury-related gap increases steadily over time until it is 14.4 percent by five years after injury.

The pattern of injury-related time out of work among the workers injured at insured firms is different. Table 9 compares various measures of return to work for the self-insured and the insured. The top panel reports the injury-related fraction not employed in the quarter, which is the same information reported as the gap between the injured and comparison worker lines in Figure 11. The first line reports data for the claimants at self-insured firms and the second reports the data for claimants at the insured. Injury-related time out of work at the insured is considerably higher during the first few years after injury. It is 18.8 percent at the insured and only 3.8 percent at the self-insured during the first quarter after injury. As with the self-insured, the gap initially increases during the first three-quarters after injury to 24.8 percent at the insured, and 10.5 percent at the self-insured. At this point, the pattern diverges because the gap begins to decline at the insured but continues to increase at the self-insured. By two and one-half years after injury, the injury-related time out of work has fallen to 16.9 percent at the insured, and increased to 13.9 percent at the self-insured. At five years after injury, the injury-related fraction out of work is higher at the self-insured than at the insured.[4]

Table 9

Comparison of Insured and Self-insured Return to Work, Relative to Controls, 1993 injuries

Injury-related Fraction[1]	Insurance Status	Quarters After Injury 1	3	5	10	20
…not employed in quarter	Self-insured	.038	.105	.125	.136	.144
	Insured	.188	.248	.238	.169	.089
…exiting labor force by quarter (cumulative to quarter)	Self-insured	.011	.024	.040	.070	--
	Insured	.046	.053	.058	.061	--
…working in quarter but no longer retained by employer	Self-insured	-.006	-.011	-.01	.01	.041
	Insured	.028	.061	.114	.184	.168

[1]All numbers are reported after subtracting the comparison workers' outcomes.

Figure 12 summarizes the post-injury employment comparison between insured and self-insured PPD claimants. The figure reports the fraction of injured workers employed as a fraction of their comparison workers employed over the three years before and five years after the injury for both self-insured and insured claimants in 1993, representing the proportion out of work for

[4] The higher fraction at the self-insured at five years partly reflects the fact that the controls are less likely to be out of work. At the insured, 65 percent of the comparison workers (compare to 56 percent of the injured) are working at five years, and at the self-insured, 77 percent of the comparison workers (compared to 62.5 percent of the injured) are working.

injury-related reasons. This proportion is equal to one for both groups over the three years prior to injury since the injured workers are as likely as the comparison workers to be employed prior to injury. After injury, the injured workers are less likely to be employed for both groups (the proportion is below 1), but the workers injured at insured firms experience considerably more time out of work over the first three to four years after injury.

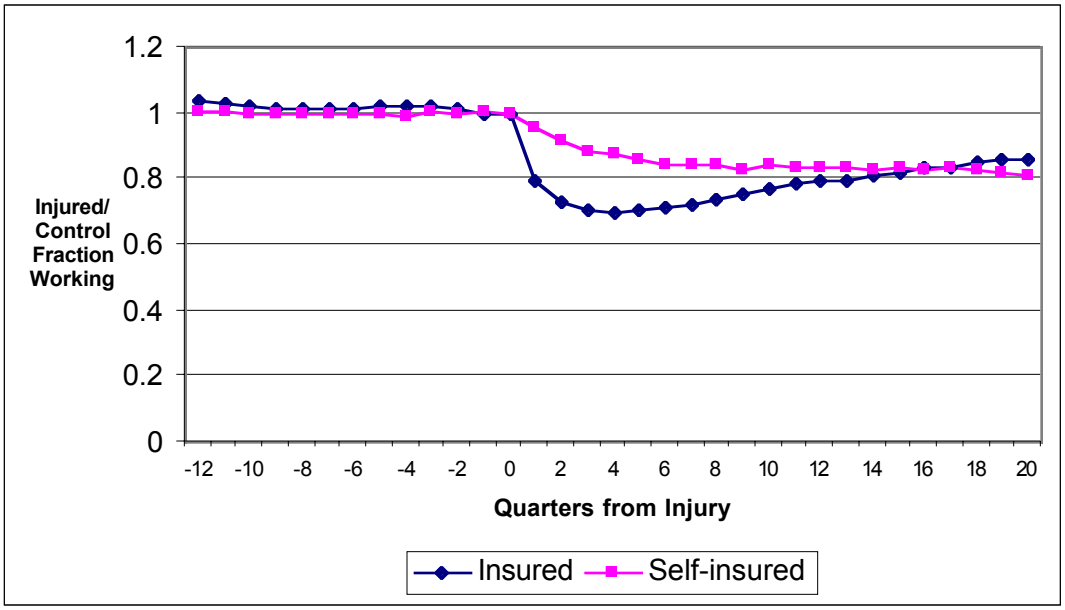

Figure 12—Ratio of Fraction Injured Workers Working to Fraction of Comparison Workers Working, 1993 Injuries, Self-insured and Insured

Figure 12 suggests that workers at self-insured firms return to work sooner and are less likely to experience subsequent time out of work, at least over the first few years after injury. After a few years, the differences between the two groups disappear, possibly reflecting an increased ability to accommodate workers at self-insured firms (perhaps entirely because they are larger), or a greater motivation to return to work among the higher-skilled, higher-paid workers typically observed at self-insured employers. Whatever the explanation, it is clear that the dislocation in the immediate aftermath of the injury can explain much of the difference in proportional wage losses between self-insured and insured firms.

Table 9 also reports the injury-related cumulative attrition, which is the fraction in each quarter after injury that will never be observed again with earnings (including those that dropped out in previous quarters). As with post-injury employment, this fraction is reported relative to the comparison workers to capture retirement, movement out of state and attrition for reasons unrelated to injury. A considerably larger fraction never return to work after injury over the first few quarters at insured firms compared to self-insured firms. For the self-insured, 1.1 percent

more injured workers than controls never return to work after the quarter of injury. Over the next two quarters, an additional 1.3 percent (over and above the controls) drop out, so that by quarter 3, 2.4 percent will never return to work. At the insured, 4.6 percent drop out after the quarter of injury, and 5.3 percent by the third quarter. However, this fraction continues to increase over time at the self-insured, but does not at the insured. If workers are going to drop out for injury-related reasons at the insured, it appears as though this occurs immediately. By ten quarters, the fraction that have dropped out is relatively equal.[5]

Post-injury employment is only one dimension of successful return to work. Even if a worker can return to work, the need to change employers may lead to loss of employer-specific skills and the loss of wage gains associated with tenure. In the ideal case, return to work implies return to the at-injury employer. Figure 13 reports the fraction of workers with PPD claims at the self-insured in 1993 that are employed by the at-injury employer. To separate this issue from the issue of lower employment among injured workers, when examining the fraction at the at-injury employer, we restrict the sample to those workers currently working.

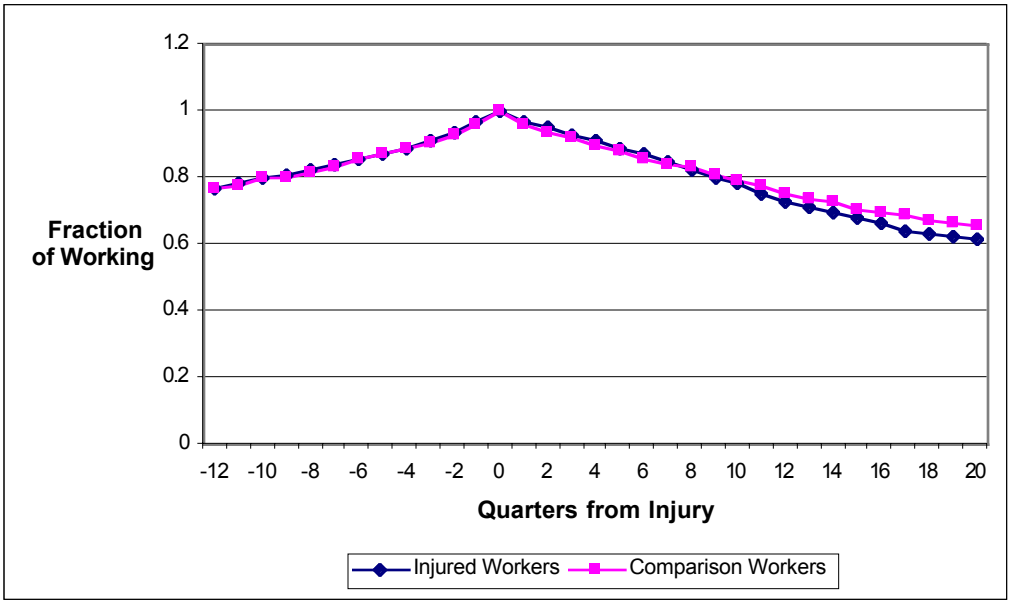

Figure 13—Fraction of Working Employed at the At-Injury Employer, PPD Claimants at Self- Insured Firms in California, 1993

[5] Later quarters of drop-out rates are biased by the fact that as the amount of time between the current period and the last period in the data decreases, the fraction that have an ability to return to work in the allotted time declines. At quarter 20, for instance, everybody out of work will be counted as having "dropped out." For this reason, we only report the result to quarter 10, which captures all of those people who will not be observed for at least another two and one-half years.

Therefore, Figure 13 compares the retention of injured workers and comparison workers (excluding those who are not working at all in the quarter). In the three years before the quarter of injury, the fraction of injured workers and comparison workers working at the at-injury employer if employed at all is almost identical. This is the case because tenure was used for matching; therefore the comparison workers were defined to have the same likelihood of being at the at-injury employer as the injured workers.[6]

After the injury, the retention of injured workers and comparison workers continues to be very similar. As reported also in the bottom panel of Table 9, during the first five quarters after injury, retention is actually higher for injured workers than for controls. After 20 quarters, the retention of injured workers at the at-injury employers is slightly lower than comparison workers, with 4.1 percent fewer injured workers retained.

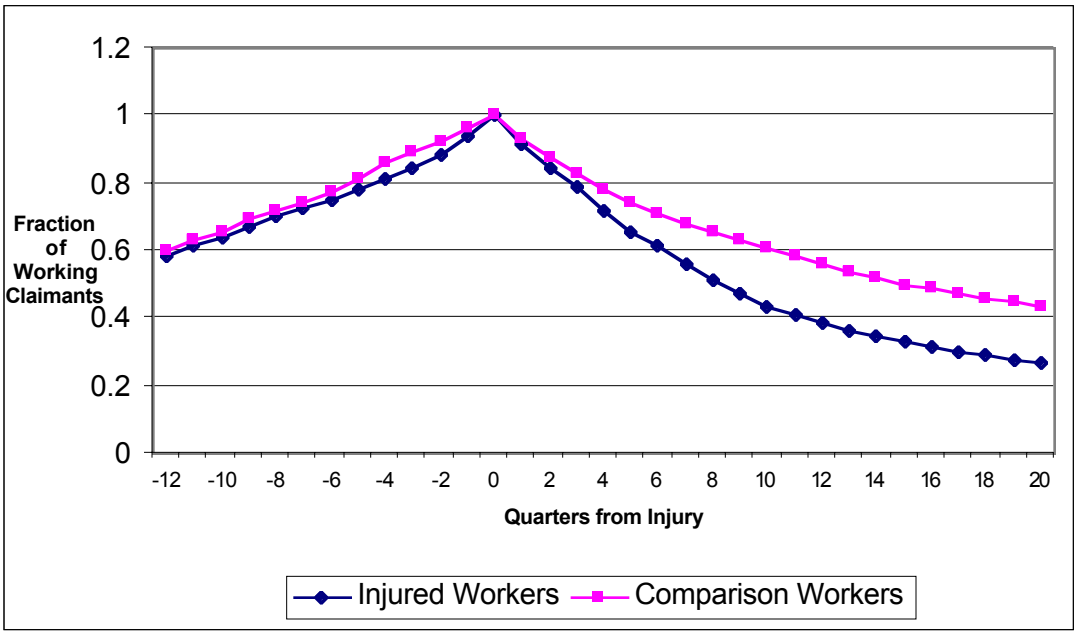

Figure 14—Fraction of Working Claimants Employed at the At-Injury Employer, PPD Claimants at Insured Firms in California, 1993

Figure 14 reports the retention of injured and comparison workers at insured firms. For this figure (and for the corresponding row in Table 9), the insured sample has been restricted to those injured workers at the insured and their comparison workers who can be matched on tenure as well as wages. While this restriction reduces the sample, as discussed in note 42 above, it also enhances comparability on this question because it ensures that injured and comparison workers

[6] In contrast, wages were not used for matching prior to one year before, and therefore wages, unlike tenure, can be used to test the quality of the controls.

have comparable attachment to the employer. It is clear in Figure 14 and in the bottom panel of Table 9 that retention is considerably lower for workers injured at insured firms. By quarter 20, retention among workers with claims at insured firms was almost 17 percent points lower than comparison workers. Since about 42 percent of comparison workers were retained by the at-injury employer, and about 23 percent of injured workers were, this finding suggests that (if working), claimants are only about one-half as likely as uninjured workers to be retained by their employers.

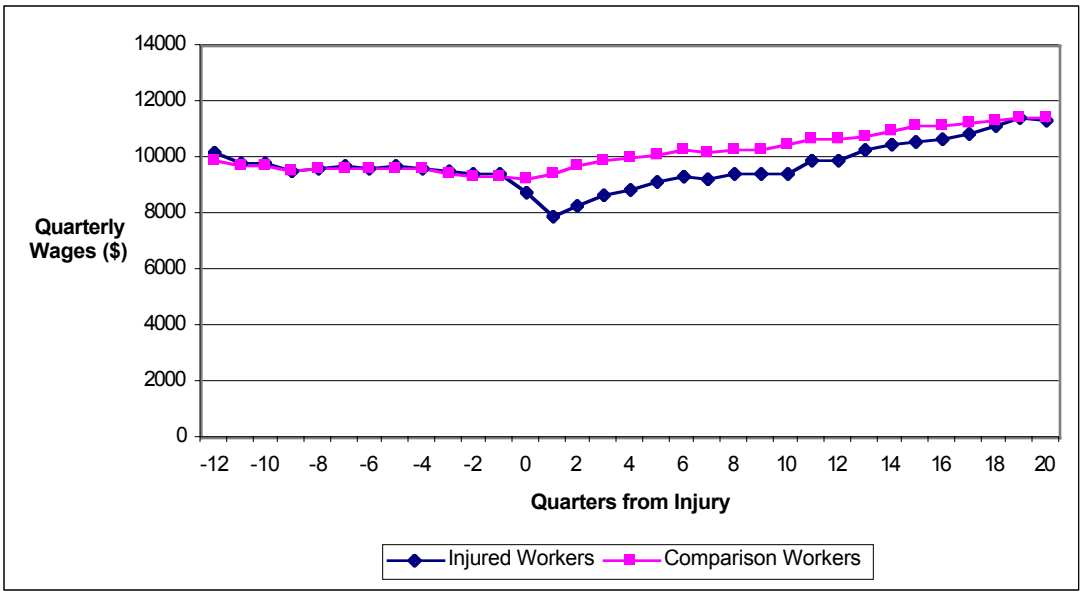

Figure 15—Wages at At-Injury Employer, PPD Claimants at Self-Insured Firms in California, 1993

Figure 15 demonstrates the value of return to the at-injury employer. The figure shows the quarterly wages in each quarter for workers working at the at-injury employer and for their controls at the at-injury employer (for PPD claimants at self-insured firms in 1993). Among this group of workers, quarterly wages appear to converge to the wages of their comparison workers, suggesting that improved return to work at the at-injury employer among the self-insured is likely to lower proportional wage loss. However, this result should be interpreted with caution because the retained employees are likely to have less serious injuries and this circumstance, too, would lead to lower losses. Estimating the causal effect of return to the at-injury employer will be deferred to future work.

This chapter has demonstrated that by almost any measure, return to work at self-insured firms is higher than at insured firms at least in the three years following injury. As will be shown below, much of this difference can be accounted for by differences between self-insured and insured firms in preinjury earnings and the number of employees.